

Power Supplies

DC to DC Converters

Single/Multi Output, General-Purpose

CC Series

FEATURES

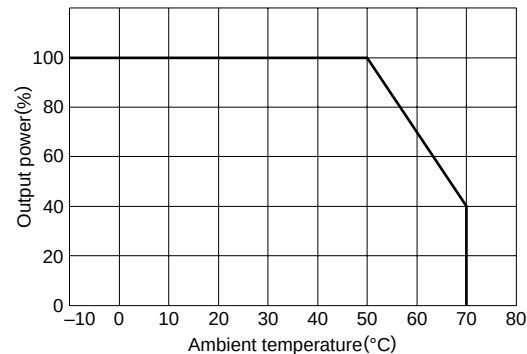
- Built-in input circuit protection element.
- Remote control(only CCN type).
- Built-in terminal for output voltage remote set.
- These DC to DC converters are entirely shielded by a metal case(except base).
- Floating input and output.
- No external components needed.
- Built-in overcurrent protection.

TEMPERATURE AND HUMIDITY RANGES

Temperature range	Operating	-20 to +70°C [With derating over 50°C]
	Storage	-40 to +85°C
Humidity range		95(%)RH max. [Maximum wet-bulb temperature:38°C]

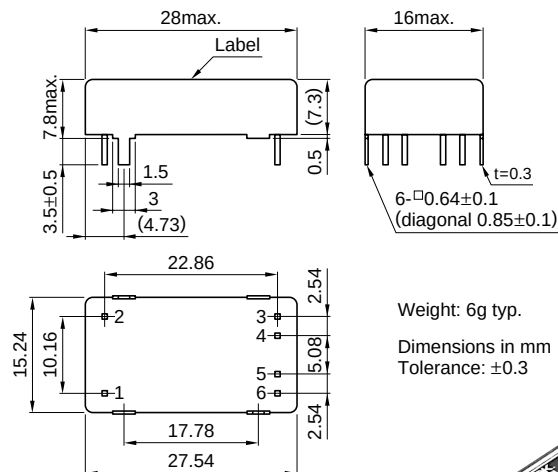
DERATINGS

Derating is necessary when operating environment temperatures exceed 50°C.



CCK TYPE

SHAPES AND DIMENSIONS



CIRCUIT DIAGRAMS

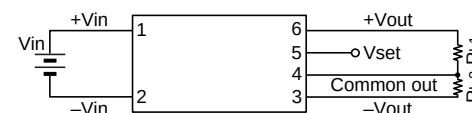
SINGLE OUTPUT TYPE

CCK-XXXXSF



2-OUTPUT TYPE

CCK-XXXXDF



TERMINAL CONNECTIONS

Type	CCK-XXXXSF	CCK-XXXXDF
No.1	+Vin	+Vin
No.2	-Vin	-Vin
No.3	NC	-Vout
No.4	-Vout	Common out
No.5	Vset	Vset
No.6	+Vout	+Vout

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CCK TYPE

ELECTRICAL CHARACTERISTICS

Part No.	Input voltage Edc(V)	Output voltage* ¹ (V)	Output current (mA)	Output voltage stability(mV)max.			Output ripple noise voltage* ² Ep-p(mV)		Efficiency* ³ (%)
				Input	Load	Temperature	typ.	max.	
CCK-0505SF	4.5 to 9	5±5%	0 to 300	20	40	50	40	120	68
CCK-0512SF	4.5 to 9	12±5%	0 to 125	30	100	100	30	120	70
		15±5%* ⁴	0 to 100	30	100	100	30	120	70
CCK-0512DF	4.5 to 9	±12±5%	±0 to 60	40	600* ⁵	150	30	120	68
		±15±5%* ⁴	±0 to 50	40	600* ⁵	150	30	120	65
CCK-1205SF	9 to 18	5±5%	0 to 300	20	40	50	40	120	73
CCK-1212SF	9 to 18	12±5%	0 to 125	30	100	100	30	120	75
		15±5%* ⁴	0 to 100	30	100	100	30	120	75
CCK-1212DF	9 to 18	±12±5%	±0 to 60	40	600* ⁵	150	30	120	73
		±15±5%* ⁴	±0 to 50	40	600* ⁵	150	30	120	73
CCK-2405SF	18 to 36	5±5%	0 to 300	20	40	50	40	120	75
CCK-2412SF	18 to 36	12±5%	0 to 125	30	100	100	30	120	75
		15±5%* ⁴	0 to 100	30	100	100	30	120	75
CCK-2412DF	18 to 36	±12±5%	±0 to 60	40	600* ⁵	150	30	120	75
		±15±5%* ⁴	±0 to 50	40	600* ⁵	150	30	120	75
CCK-4805SF	36 to 72	5±5%	0 to 300	20	40	50	40	120	75
CCK-4812SF	36 to 72	12±5%	0 to 125	30	100	100	30	120	75
		15±5%* ⁴	0 to 100	30	100	100	30	120	75
CCK-4812DF	36 to 72	±12±5%	±0 to 60	40	600* ⁵	150	30	120	75
		±15±5%* ⁴	±0 to 50	40	600* ⁵	150	30	120	75

*¹ Output voltage includes input variation, load variation(balanced load), and temperature variation.

*² Measurement frequency: 50MHz

*³ Input voltage:rated voltage, output current:maximum value.

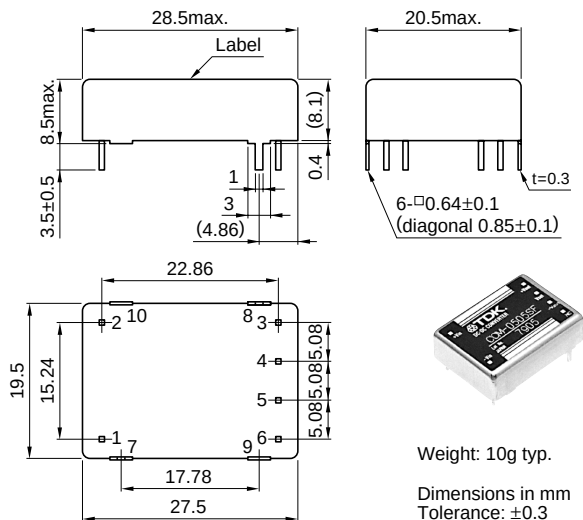
*⁴ Obtained by externally shorting Vset and (-) Vout.

*⁵ Loads were varied simultaneously for those products with 2 outputs.

• Items within the rectangular border at the bottom of the table are special order products.

CCM TYPE

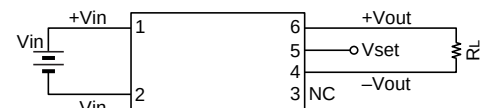
SHAPES AND DIMENSIONS



CIRCUIT DIAGRAMS

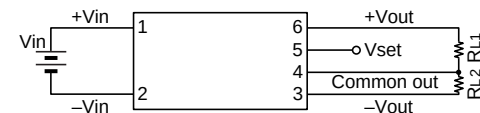
SINGLE OUTPUT TYPE

CCM-XXXXSF



2-OUTPUT TYPE

CCM-XXXXDF



TERMINAL CONNECTIONS

Type	CCM-XXXXSF	CCM-XXXXDF
No.1	+Vin	+Vin
No.2	-Vin	-Vin
No.3	NC	-Vout
No.4	-Vout	Common out
No.5	Vset	Vset
No.6	+Vout	+Vout

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CCM TYPE

ELECTRICAL CHARACTERISTICS

Part No.	Input voltage Edc(V)	Output voltage*1 (V)	Output current (mA)	Output voltage stability(mV)max.			Output ripple noise voltage*2 Ep-p(mV)		Efficiency*3 (%)
				Input	Load	Temperature	typ.	max.	
CCM-0505SF	4.5 to 9	5±5%	0 to 600	20	40	50	40	120	70
CCM-0512SF	4.5 to 9	12±5%	0 to 250	30	100	100	30	120	72
		15±5%*4	0 to 200	30	100	100	30	120	72
CCM-0512DF	4.5 to 9	±12±5%	±0 to 125	40	600*5	150	30	120	72
		±15±5%*4	±0 to 100	40	600*5	150	30	120	72
CCM-1205SF	9 to 18	5±5%	0 to 600	20	40	50	40	120	75
CCM-1212SF	9 to 18	12±5%	0 to 250	30	100	100	30	120	77
		15±5%*4	0 to 200	30	100	100	30	120	77
CCM-1212DF	9 to 18	±12±5%	±0 to 125	40	600*5	150	30	120	77
		±15±5%*4	±0 to 100	40	600*5	150	30	120	77
CCM-2405SF	18 to 36	5±5%	0 to 600	20	40	50	40	120	75
CCM-2412SF	18 to 36	12±5%	0 to 250	30	100	100	30	120	78
		15±5%*4	0 to 200	30	100	100	30	120	78
CCM-2412DF	18 to 36	±12±5%	±0 to 125	40	600*5	150	30	120	78
		±15±5%*4	±0 to 100	40	600*5	150	30	120	78
CCM-4805SF	36 to 72	5±5%	0 to 600	20	40	50	40	120	75
CCM-4812SF	36 to 72	12±5%	0 to 250	30	100	100	30	120	78
		15±5%*4	0 to 200	30	100	100	30	120	78
CCM-4812DF	36 to 72	±12±5%	±0 to 125	40	600*5	150	30	120	78
		±15±5%*4	±0 to 100	40	600*5	150	30	120	78

*1 Output voltage includes input variation, load variation(balanced load), and temperature variation.

*2 Measurement frequency: 50MHz

*3 Input voltage:rated voltage, output current:maximum value.

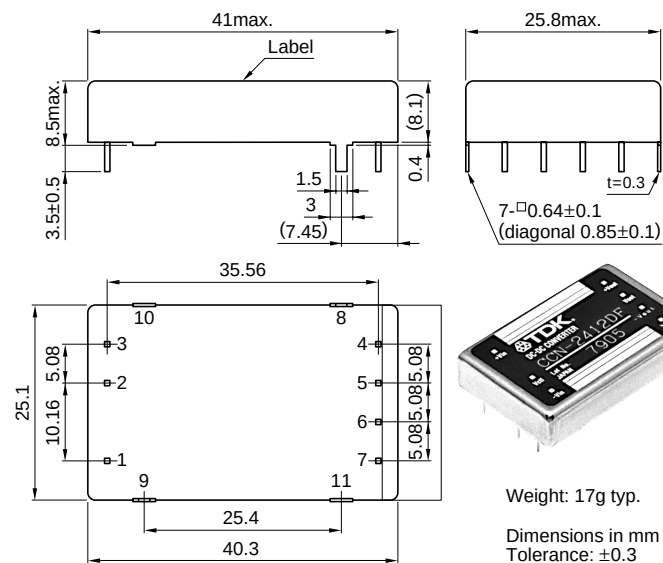
*4 Obtained by externally shorting Vset and (-) Vout.

*5 Loads were varied simultaneously for those products with 2 outputs.

• Items within the rectangular border at the bottom of the table are special order products.

CCN TYPE

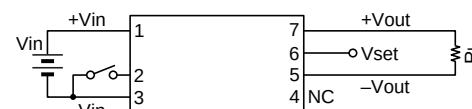
SHAPES AND DIMENSIONS



CIRCUIT DIAGRAMS

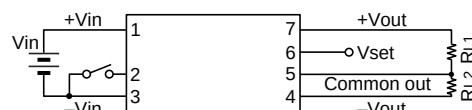
SINGLE OUTPUT TYPE

CCN-XXXXSF



2-OUTPUT TYPE

CCN-XXXXDF



TERMINAL CONNECTIONS

Type	CCN-XXXXSF	CCN-XXXXDF
No.1	+Vin	+Vin
No.2	Vcontrol	Vcontrol
No.3	-Vin	-Vin
No.4	NC	-Vout
No.5	-Vout	Common out
No.6	Vset	Vset
No.7	+Vout	+Vout

• Converter output ON: Vcontrol(0 to 0.4V), or shorted with No.2.
Converter output OFF: Vcontrol(1V to Vin), or open.

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CCN TYPE

ELECTRICAL CHARACTERISTICS

Part No.	Input voltage Edc(V)	Output voltage* ¹ (V)	Output current (mA)	Output voltage stability(mV)max.			Output ripple noise voltage* ² Ep-p(mV)		Efficiency* ³ (%)
				Input	Load	Temperature	typ.	max.	
CCN-0505SF	4.5 to 9	5±5%	0 to 1000	20	40	50	40	120	74
CCN-0512SF	4.5 to 9	12±5%	0 to 500	30	100	100	30	120	78
		15±5%* ⁴	0 to 400	30	100	100	30	120	78
CCN-0512DF	4.5 to 9	±12±5%	±0 to 250	40	600* ⁵	150	30	120	76
		±15±5%* ⁴	±0 to 200	40	600* ⁵	150	30	120	76
CCN-1205SF	9 to 18	5±5%	0 to 1200	20	40	50	40	120	80
CCN-1212SF	9 to 18	12±5%	0 to 500	30	100	100	30	120	85
		15±5%* ⁴	0 to 400	30	100	100	30	120	85
CCN-1212DF	9 to 18	±12±5%	±0 to 250	40	600* ⁵	150	30	120	85
		±15±5%* ⁴	±0 to 200	40	600* ⁵	150	30	120	85
CCN-2405SF	18 to 36	5±5%	0 to 1200	20	40	50	40	120	82
CCN-2412SF	18 to 36	12±5%	0 to 500	30	100	100	30	120	85
		15±5%* ⁴	0 to 400	30	100	100	30	120	85
CCN-2412DF	18 to 36	±12±5%	±0 to 250	40	600* ⁵	150	30	120	85
		±15±5%* ⁴	±0 to 200	40	600* ⁵	150	30	120	85
CCN-4805SF	36 to 72	5±5%	0 to 1200	20	40	50	40	120	80
CCN-4812SF	36 to 72	12±5%	0 to 500	30	100	100	30	120	85
		15±5%* ⁴	0 to 400	30	100	100	30	120	85
CCN-4812DF	36 to 72	±12±5%	±0 to 250	40	600* ⁵	150	30	120	85
		±15±5%* ⁴	±0 to 200	40	600* ⁵	150	30	120	85

*¹ Output voltage includes input variation, load variation(balanced load), and temperature variation.*² Measurement frequency: 50MHz*³ Input voltage:rated voltage, output current:maximum value.*⁴ Obtained by externally shorting Vset and (-) Vout.*⁵ Loads were varied simultaneously for those products with 2 outputs.

• Items within the rectangular border at the bottom of the table are special order products.

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